

To: Bob Piorkowski, ADFG

From: Kathleen Williamson

Date: 20 March 2009

Re: SF2008-137

Background

This purpose of this research was to support an environmental impact statement (EIS) that is currently being prepared for proposed runway safety areas (RSAs) at the Kodiak Airport. Data were gathered during 2007-2008 to assist with describing the existing aquatic environment and analyzing potential environmental impacts of proposed project alternatives. The study area involved was the lower Buskin River (below Devils Creek), Devils Creek, the Buskin River estuary, and nearshore marine areas surrounding the Kodiak Airport. Separate permits were required to address research conducted in marine and freshwater areas. This report focuses on fieldwork conducted under permit SF2008-137; which occurred during 2008 in the Buskin River (including the estuary) and Devils Creek. A separate report addressing fieldwork conducted during 2008 on the marine side of the Buskin River barrier bar and nearshore (intertidal and subtidal) areas surrounding the Kodiak Airport runways was submitted 30 January 2009, in accordance with permit CF-08-042.

Methods

Field surveys were conducted in June 2008 to determine

- Fish presence, distribution, and timing of habitat use in Devils Creek, the Buskin River, and the Buskin River estuary.
- The relative abundance and types of aquatic macroinvertebrates in the Buskin River estuary and Devils Creek.

Fish Sampling

Fish were sampled in June 2008. Opai nets, which are small hand-held beach seines, were used to target small off-channel areas in the Buskin River estuary and edge habitat in Devils Creek; these nets had 0.25-inch mesh. Fyke nets (0.08-inch mesh) were used to sample four locations in the Buskin River estuary and one location in Devils Creek. Each trap was fished for an entire incoming and outgoing tide, regardless of the duration of tidal cycle. Traps were emptied at peak tide and turned to face the direction of the tidal flow. Beach seines (0.25-inch mesh) were used to sample the Buskin River estuary. Fish were identified and measured or enumerated immediately following retrieval of the net. Following processing, fish were immediately returned to the estuary at the site in which they were collected. A few individuals were retained for identification. Snorkel surveys were used to determine fish use in the lower Buskin River and estuary during high tide.

Invertebrate Sampling

Freshwater invertebrates were sampled in June 2008 using kick nets (Devils Creek) and drift nets (Devils Creek and Buskin River estuary). Kick nets (0.02-inch mesh) were used to target various substrates and edge habitats that could not be sampled with drift nets. Material retained in the nets was sorted on a white tray with types and relative abundance of invertebrate groups noted.

Drift nets (0.004-inch mesh) were deployed in Devils Creek at the base of Devils Creek falls (near Runway end 7). Drift nets were deployed in the Buskin River estuary at three locations for an entire incoming and outgoing tide, regardless of tidal cycle duration. Nets were emptied at peak tide and turned to face the new direction of tidal flow. The volume of material collected in the nets was approximated, and the material was sorted on a white tray with types and relative abundance of invertebrate groups noted.

Data

A complete list of fish species identified during this study (2007-2008) is summarized in Table 1. A detailed list of fish species collected under Permit SF2008-137 was submitted to ADF&G on 20 January 2009, in accordance with stipulations listed in the permit. Fish collected during 2007 (Permit SF2007-185) and fish collected from the marine side of the Buskin River barrier bar (Permits CF-07-093 and CF-08-042) have been documented and reported in accordance with appropriate permit stipulations. A list of invertebrates collected during this study is summarized in Table 2.

Table 1. Fishes Identified in the Airport Study Area during 2007–2008 Field Surveys

Common Name	Scientific Name	Year(s)	Location Observed ¹		
			Freshwater	Estuary	Marine
<i>Salmonids</i>					
pink salmon	<i>Oncorhynchus gorbuscha</i>	2007, 2008	*	*	*
chum salmon	<i>Oncorhynchus keta</i>	2008		*	*
coho salmon	<i>Oncorhynchus kisutch</i>	2007, 2008	*	*	*
steelhead/ rainbow trout	<i>Oncorhynchus mykiss</i>	2007, 2008		*	
sockeye salmon	<i>Oncorhynchus nerka</i>	2008	*	*	
Dolly Varden char	<i>Salvelinus malma</i>	2007, 2008	*	*	*
<i>Smelts:</i>					
surf smelt	<i>Hypomesus pretiosus</i>	2008			*
<i>Cods:</i>					
Pacific tomcod	<i>Microgadus proximus</i>	2008			*
walleye pollock	<i>Theragra chalcogramma</i>	2008			*
unidentified cod	Family Gadidae	2008			*
<i>Sticklebacks:</i>					
threespine stickleback	<i>Gasterosteus aculeatus</i>	2007, 2008	*	*	*
<i>Sculpins:</i>					
buffalo sculpin	<i>Enophrys bison</i>	2007, 2008		*	*
Pacific staghorn sculpin	<i>Leptocottus armatus</i>	2007, 2008	*	*	*
great sculpin	<i>Myoxocephalus polyacanthocephalus</i>	2008			*
tidepool sculpin	<i>Oligocottus maculosus</i>	2008			*
unidentified sculpin	Family Cottidae	2007, 2008	*	*	*
<i>Poachers:</i>					
tubenose poacher	<i>Pallasina barbata</i>	2008			*
sturgeon poacher	<i>Podothecus accipenserinus</i>	2008			*
unidentified poacher	Family Agonidae	2008			*

Common Name	Scientific Name	Year(s)	Location Observed ¹		
			Freshwater	Estuary	Marine
<i>Snailfishes:</i>					
spotted snailfish	<i>Liparis callyodon</i>	2008			*
unidentified snailfish (Liparidae)	<i>Liparis</i> sp.	2007		*	
<i>Sandfishes:</i>					
Pacific sandfish	<i>Trichodon trichodon</i>	2008			*
<i>Sand Lances:</i>					
Pacific sand lance	<i>Ammodytes hexapterus</i>	2008			*
<i>Righteye Flounders:</i>					
butter sole	<i>Isopsetta isolepis</i>	2008			*
rock sole	<i>Lepidopsetta</i> spp.	2008			*
starry flounder	<i>Platichthys stellatus</i>	2007, 2008		*	*
sand sole	<i>Psettichthys melanostictus</i>	2008			*
unidentified righteye flounders	Family Pleuronectidae	2007, 2008			*

¹ *Freshwater* indicates that fish were observed in the Buskin River (upstream from the old bridge fill embankment) or in Devils Creek. *Estuary* indicates that fish were observed in the Buskin River (downstream from the old bridge fill embankment and west of the Buskin River barrier bar). *Marine* indicates that fish were observed on the east side of the Buskin River barrier bar.

Table 2. Aquatic Invertebrates Collected in the Airport Study Area, June 2008

Common Name	Class	Order	Location	
			Buskin River Estuary	Devils Creek
water mites	Arachnida	Acari	*	*
snails	Gastropoda	unknown	*	
leeches	Hirudinea (subclass)	unknown	*	
water beetles	Insecta	Coleoptera	*	*
mayflies	Insecta	Ephemeroptera	*	*
stoneflies	Insecta	Plecoptera	*	*
caddisflies	Insecta	Trichoptera	*	*
true flies	Insecta	Diptera	*	*
midges	Insecta	Diptera	*	*
scuds	Malacostraca	Amphipoda	*	
water fleas	Malacostraca	Cladocera	*	
aquatic worms	Oligochaeta (subclass)	unknown	*	*

Analysis

The EIS, for which this data was collected, is currently being developed; a supporting document, *Freshwater and Marine Ecology Technical Report for Kodiak Airport Environmental Impact Statement, Kodiak, Alaska*, was finalized in March 2009. The fish data are being used to analyze potential affects to the environment from proposed project alternatives. This analysis is currently progressing.